

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-17

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CUMMINS ENGINE COMPANY, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Cummins Engine Company Inc. 1997 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Ag. Tractor, Genset, Mining/Construction Trucks, Snow Groomer, Logging Equipment

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
VCE505R6DTRA (A412)	8.3 (505)	Turbocharger Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

<u>Exhaust Emissions (g/bhp-hr)</u>				<u>Smoke Opacity ( % )</u>		
<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

<u>Engine Family</u>	<u>Exhaust Emission (g/bhp-hr)</u>				<u>Smoke Opacity ( % )</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
VCE505R6DTRA (A412)	0.3	0.6	5.5	0.3	5	2	11

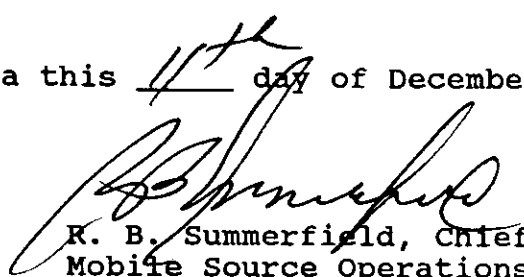
BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 11<sup>th</sup> day of December 1996.

  
R. B. Summerfield, Chief  
Mobile Source Operations Division

1997 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET  
HEAVY-DUTY OFF-ROAD DIESEL ENGINES

Manufacturer Cummins Engine Company, Inc. Engine Family (A412)VCE505R6DTRA  
 Displacement: 505 / 8.3 Liters/Cubic Inches Eng Config: I-6  
 All Codes in Eng Fam: CA ☐ 49S ☐ 50S ☒ Cert Test Procedures: ARB ☒ EPA ☒  
 Valves/Ports per Cylinder 2 Strokes per Combustion Cycle 4  
 Maximum Rated Power: 215 HP ( 160 KW) @ 2200 RPM  
 Ignition: Compression ☒ Compression with Glow Plug ☐ Spark ☐  
 Fuel Type(s): Dedicated ☒ Flex-Fuel ☐ Dual Fuel ☐ Diesel ☒ M100 ☐ M85 ☐  
                   CNG ☐ LNG ☐ LPG ☐ Other (specify) \_\_\_\_\_  
 Diesel Cert Fuel: 40 CFR 89.330-96 ☒ Other (specify) \_\_\_\_\_  
 Primary Service Equipment: Ag Tractors, Constuction/Mining Trucks, Snow Groomers, Logging Equipment  
Movers, Generator Drives  
 Exhaust ECS (e.g., MFI, TC, CAC): \_\_\_\_\_ TC/CAC

(use abbreviations per SAE J1930 JUN93)

Engine Model (Eng Code)	Rated HP @ RPM	Fuel Rate @ Rated HP mm <sup>3</sup> / stroke (lbs/hr)	Fuel Pump & Injector Part No.	ECM/PCM Part No.	EGR Valve Part No.	PTOX / Catalytic Converter Part No.
<u>1943</u>			IN 3928228			
<u>C8.3-C</u>	215 @ 2200	111(82.3)	FP 3926881	N/A	N/A	N/A
	215 @ 2200	111(82.3)	FP 3926881			
	215 @ 2200	111(82.3)	FP 3931978			
	205 @ 2200	106(78.9)	FP 3930123			
	205 @ 2200	106(78.9)	FP 3926880			
	205 @ 2200	106(78.9)	FP 3926880			
	190 @ 2200	98(73.0)	FP 3926878			
	185 @ 2200	96(71.0)	FP 3926877			
	185 @ 2200	96(71.0)	FP 3929165			
<u>2060</u>			IN 3928228			
<u>C8.3-C</u>	205 @ 2000	115(77.6)	FP 3929166	N/A	N/A	N/A
	195 @ 1900	112(71.8)	FP 3930118			
	180 @ 2000	98(66.2)	FP 3929167			
	177 @ 2100	95(67.4)	FP 3930119			
<u>2061</u>			IN 3928228			
<u>C8.3-C</u>	201 @ 2500	99(83.7)	FP 3930412	N/A	N/A	N/A
	177 @ 2500	87(73.7)	FP 3929164			
<u>2185</u>			IN 3928228			
<u>C8.3-C</u>	215 @ 2500	196(85.1)	FP 3929163	N/A	N/A	N/A
Date Issued:						
Revisions:						

SUBMITTED  
OCT 11 1996

1997 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET  
HEAVY-DUTY OFF-ROAD DIESEL ENGINES

Manufacturer Cummins Engine Company, Inc. Engine Family (A412)VCE505R6DTRA  
Displacement: 505 / 8.3 Liters/Cubic Inches Eng Config: I-6  
All Codes in Eng Fam: CA ☐ 49S ☐ 50S ☒ Cert Test Procedures: ARB ☒ EPA ☒  
Valves/Ports per Cylinder 2 Strokes per Combustion Cycle 4  
Maximum Rated Power: 215 HP ( 160 KW) @ 2200 RPM  
Ignition: Compression ☒ Compression with Glow Plug ☐ Spark ☐  
Fuel Type(s): Dedicated ☒ Flex-Fuel ☐ Dual Fuel ☐ Diesel ☒ M100 ☐ M85 ☐  
CNG ☐ LNG ☐ LPG ☐ Other (specify) \_\_\_\_\_  
Diesel Cert Fuel: 40 CFR 89.330-96 X Other (specify) \_\_\_\_\_  
Primary Service Equipment: Ag Tractors, Constuction/Mining Trucks, Snow Groomers, Logging Equipment  
Movers, Generator Drives  
Exhaust ECS (e.g., MFI, TC, CAC): TC/CAC

(use abbreviations per SAE J1930 JUN93)

Engine Model (Eng Code)	Rated HP @ RPM	Fuel Rate @ Rated HP mm <sup>3</sup> / stroke (lbs/hr)	Fuel Pump & Injector Part No.	ECM/PCM Part No.	EGR Valve Part No.	PTOX / Catalytic Converter Part No.
<u>2216</u> C8.3-C	207@1800	125(75.9)	IN 3928228 FP 3931253	N/A	N/A	N/A

Date Issued:

Revisions:

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